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Health at a Glance

Understanding seniors' risk of falling and their perception of risk

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.	not available for any reference period
..	not available for a specific reference period
...	not applicable
0	true zero or a value rounded to zero
0^s	value rounded to 0 (zero) where there is a meaningful distinction between true zero and the value that was rounded
^{p}	preliminary
^{r}	revised
x	suppressed to meet the confidentiality requirements of the *Statistics Act*
^{E}	use with caution
F	too unreliable to be published
*	significantly different from reference category ($p < 0.05$)

Health at a Glance

Understanding seniors' risk of falling and their perception of risk

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Highlights

- In 2008–2009, about 1 in 3 seniors aged 65 and older, were concerned about future falls.
- Both risk and perceived risk of a fall increased with age.
- Women were more concerned about falling and had a higher risk of falling than men.
- In 2008–2009 approximately 2 in 10 seniors overestimated their risk of falling while about 1 in 10 underestimated their risk.

Falls are the most common cause of injury among older Canadians.[1] Every year, it is estimated 1 in 3 seniors aged 65 years and older are likely to fall at least once.[2] Falls are also one of the leading causes of injury-related hospitalizations among seniors, and contributed to 73,190 hospitalizations during 2008–2009.[3,4] Each year, hospitalizations due to falls account for approximately 85% of injury related hospitalizations for seniors.[5] According to the Public Health Agency of Canada, over one-third of seniors who are hospitalized as a result of a fall are placed in long-term care.[6]

The consequences of falls later in life can be serious, resulting in hospitalizations, reduced quality of life, chronic pain, injuries such as hip fractures, and increased risk of death.[7,8] In Canada, in 2008–2009, 35% of fall-related hospitalizations among seniors involved a hip fracture.[9]

Although there are real consequences of falling, there can also be issues related to misunderstanding the risk of falling. Overestimating the risk of falling may lead to reducing physical activity. This can actually increase risk of falling because physical activity plays an important role in maintaining strength and balance.[10] On the other hand, when seniors underestimate their risk of falling, they may take risks beyond their physical ability, and place themselves at greater risk of falling.[11]

This article highlights how seniors, aged 65 years and older, who live at home, perceived their risk of falling, and how their perception compared with their risk. Seniors who overestimate, underestimate, or accurately perceive their risk of falling are examined using data from the 2008–2009 Canadian Community Health Survey – Healthy Aging (CCHS – HA). This article may be used to develop and improve programs for prevention of falls for seniors at risk of falling.

One-fifth of seniors fell

In 2008–2009, approximately 20% of Canadians aged 65 and older (862,000 seniors) reported a **fall** in the previous year. Among seniors who fell in the past year, 61% were women and 39% were men.

Falls increased with age. About 17% of seniors between the ages of 65 and 69 reported falling in the past year, compared with 27% of seniors aged 85 and older.

Fall

A fall in this article is one that has occurred in the past 12 months. The 2008–2009 Canadian Community Health Survey – Healthy Aging (CCHS – HA) only collected information from respondents about falls that were severe enough to limit some of their normal activities.[12]

Perceived risk of falling: when a respondent answered yes to the question, "are you worried or concerned that in the future you might fall."

Perceived risk of falling

Just over one-third of Canadians, aged 65 and older (34%), reported being concerned about a future fall. About a third of those who **perceived a risk of falling** had fallen within the past year.

An exaggerated concern about falling can increase risk of falling and, as a result, impact participation in social and physical activities as well as quality of life.[13,14,15] Among seniors aged 65 and older who perceived a risk of falling, approximately 44% reported that they had stopped doing some of the activities they enjoyed because of their concern.

Falling, and perceiving a risk of a fall, have been identified as risk factors for each other.[16] Falling can lead to concern about future falls, while perceiving a risk of a fall may lead seniors to reduce their participation in activities that help build strength, balance, confidence and self-esteem.[17]

What comes first – fear or a fall?

Past research has sought to understand what comes first: the fear of falling or the fall. A longitudinal study from the United States found that both occurred: in some cases falling led to fear, and in others, fear led to falls.[18]

In general, among seniors who had not fallen, an initial fear of falling led to a higher probability of falling later on.[19] The same study also found that among seniors who were initially not afraid of falling, those who experienced a fall were more likely to report fear of a fall 20 months later than seniors who had not fallen. That is, a fall led to the development of fear.

Perceiving a risk of a fall differed by age groups as well as by sex. Women perceived a greater risk of falling than men across all age groups (Chart 1). About 42% of women perceived a risk compared with close to a quarter of men (24%) (Data not shown).

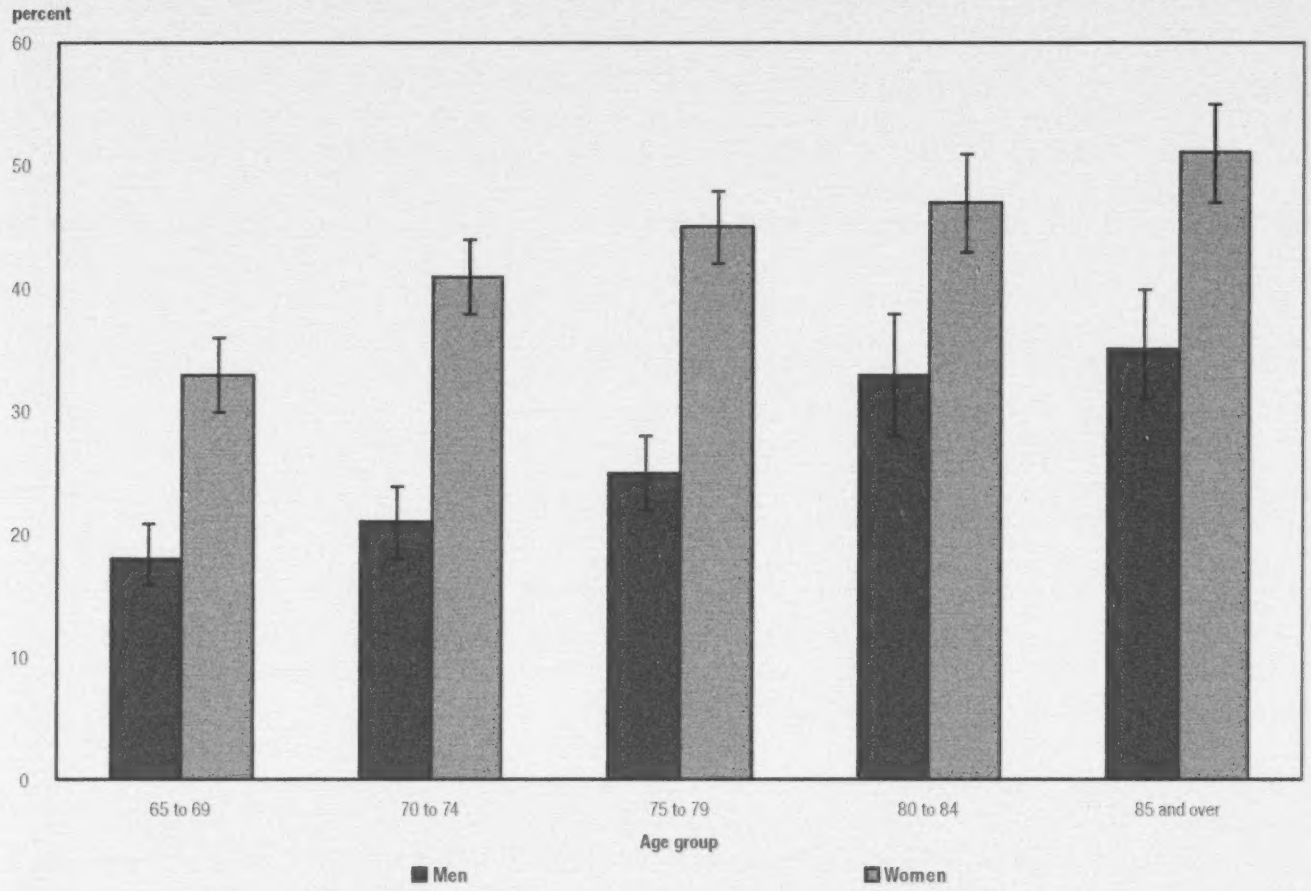
In 2008–2009, the proportion of seniors who perceived a risk of falling increased with age (Chart 1). Close to one-half of seniors aged 85 years and older (46%) perceived a risk of falling, while about one-quarter of seniors aged 65 to 69 (26%) perceived a risk (Data not shown).

Compared with seniors who did not perceive a risk, those who perceived a risk of falling were more likely to have:

- been diagnosed with three or more chronic conditions;
- taken three or more medications per day;
- felt poorly about their health;
- lived alone; and
- fallen in the past year (Chart 2).

Among seniors who perceived a risk of a fall, approximately 71% had been diagnosed with three or more chronic conditions, compared with 50% of seniors who did not perceive a risk. Similarly, seniors who perceived a risk of a fall rated their overall health more poorly than seniors who did not perceive a risk. Among seniors, who perceived a risk of falling, about 68% thought their overall health was poor, fair or good, compared with 51% of seniors who did not perceive a risk (Chart 2).

Chart 1
Percentage of seniors who perceived a risk of falling by age and sex, household population aged 65 and older, Canada, 2008–2009



Note: The lines overlaid on the bars in this chart indicate the 95% confidence interval. They enable comparison of statistical differences between estimates.
Source: Canadian Community Health Survey – Healthy Aging, 2008–2009.

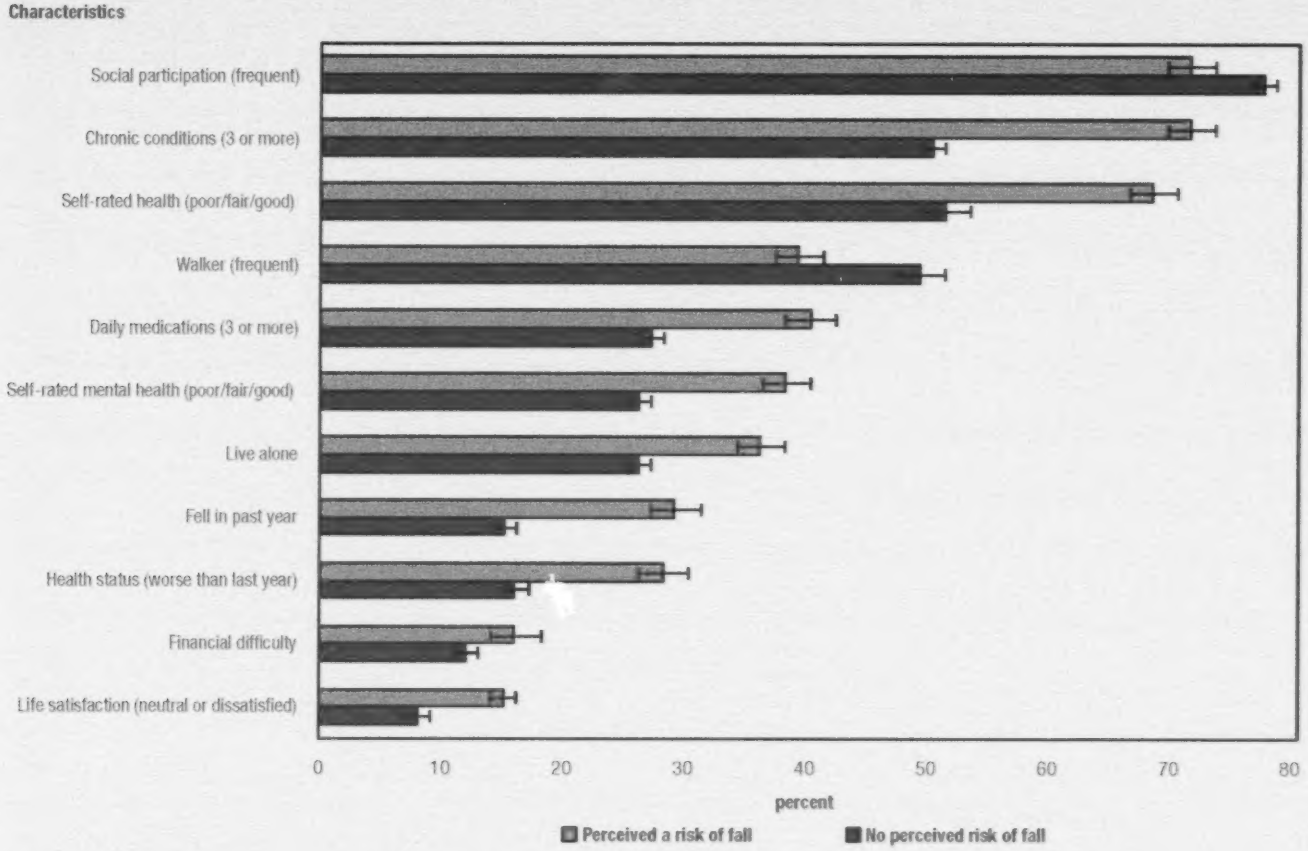
Previous studies have found reduced participation in social activities to be a consequence of a perceived risk of falling.[20] In 2008–2009, about 7 in 10 seniors who perceived a risk of a fall participated in community-related activities at least once a week, which was lower than those who did not perceive a risk.

In 2008–2009, among seniors who believed they were at risk of a fall, about one-third (29%) fell in the past year, while among seniors who did not perceive a risk, 15% reported a fall. Seniors who are concerned about falling in the future, after having previously fallen, may be at an increased risk, as past research has found that the best predictor of future falls is previous falls.[21]

High risk of falling

While about 1.5 million seniors perceived a risk of falling, not all who reported a concern were at a **high risk of a fall**. In 2008–2009, while approximately 34% of seniors aged 65 and older were concerned that they might fall in the future, 22% were at a high risk of falling. Most seniors were not at a high risk of a fall. Approximately 78% of seniors had a **low risk** in 2008–2009.

Chart 2
Some characteristics[1] of seniors aged 65 or older by perceived risk of a fall, Canada, 2008–2009



1. See 'Key definitions' box for definitions of several of the variables used in this chart.
Note: The lines overlaid on the bars in this chart indicate the 95% confidence interval. They enable comparison of statistical differences between estimates.
Source: Canadian Community Health Survey – Healthy Aging, 2008–2009.

Risk of a fall

High risk of a fall was measured using the screening criteria developed by the American and British Geriatrics Societies.[22] Respondents were categorized as being at an elevated risk for a fall if they met one of the following three criteria:

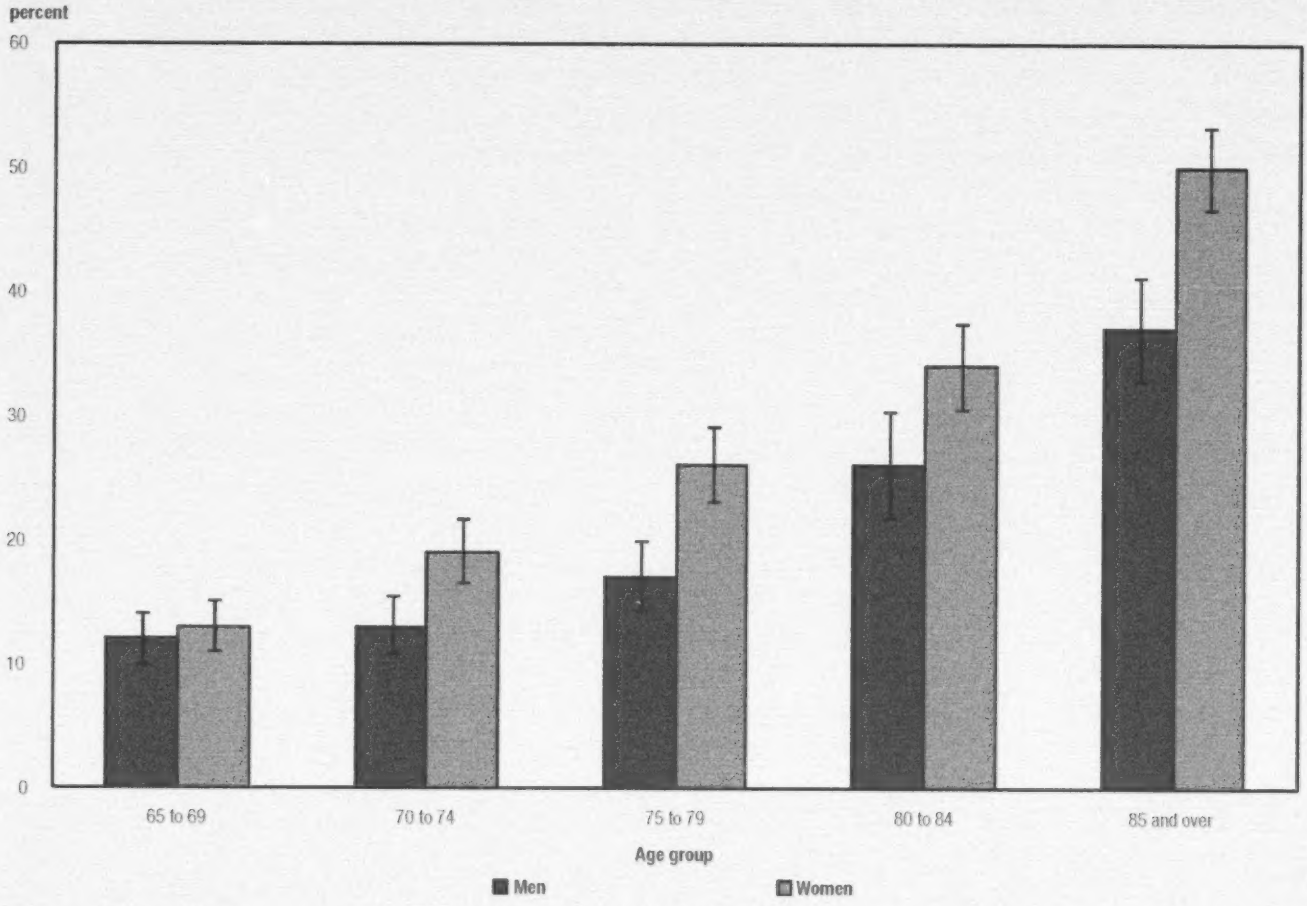
1. two or more falls within the last 12 months;
2. sought medical attention within 48 hours of an injury following a fall; or
3. difficulty with walking or balance.

Low risk of a fall: Respondents who did not meet any of the three criteria for having a high risk of a fall were considered to have a low risk.

More women than men were at a high risk of falling across all age groups except those aged 65 to 69, where the risk of a fall was about the same for men and women (13%) (Chart 3).

Having a high risk of a fall tended to increase with age (Chart 3). Among seniors aged 85 years and older, about 46% were at a high risk of a fall, compared with 13% of seniors aged 65 to 69 (data not shown).

Chart 3
Percentage of seniors who were at a high risk of falling by age and sex, household population aged 65 and older, Canada, 2008–2009



Note: The lines overlaid on the bars in this chart indicate the 95% confidence interval. They enable comparison of statistical differences between estimates.
Source: Canadian Community Health Survey – Healthy Aging, 2008–2009.

Comparing perception with risk

Most seniors, about 70%, had an **accurate perception** of their risk of falling. A senior could **accurately perceive a low risk** of falling, or **accurately perceive a high risk**. More than half of seniors aged 65 years and older accurately perceived a low risk of falling (57%), while 13% accurately perceived a high risk of falling.

About 30% of seniors had an **inaccurate perception** of their risk: they **overestimated or underestimated** their risk of falling. About 21% of seniors overestimated their risk of falling while about 9% underestimated their risk.

Comparing perception with risk

This article follows a similar strategy as an Australian study[23] that compares seniors' perceptions of falling with their risk of falling.[24] This approach was used to assess the number of seniors who overestimate, underestimate or accurately perceive their risk of falling.

1. **Accurate perception**:
    a. **Accurate – high risk:** Seniors correctly perceived they were at a high risk of falling if they were concerned about falling and met the screening criteria for having a **high risk of a fall**.
    b. **Accurate – low risk:** Seniors correctly perceived they were at low risk of a fall if they were not concerned about a fall and **did not** meet the screening criteria for having a **high risk of a fall**.
2. **Inaccurate perception**:
    a. **Overestimate:** Seniors overestimated their risk of falling if they were concerned about falling but **did not** meet the screening criteria for having a **high risk of a fall**.
    b. **Underestimate:** Seniors underestimated their risk of falling if they were not concerned about falling but they met the screening criteria for having a **high risk of a fall**.

The percentage of seniors who accurately perceived a low risk of a fall declined from younger to older age groups, while the percentage of seniors who accurately perceived a high risk of falling increased at older ages.

Among seniors aged 65 to 69—about 7 in 10 (68%) accurately perceived they were at a low risk of fall, and about 2 in 10 (19%) overestimated their risk (Chart 4).

For those aged 85 years and older—about 3 in 10 (28%) correctly perceived they were at a high risk of falling, while almost 4 in 10 (37%) correctly perceived they were at a low risk of a fall.

Seniors in older age groups tended to underestimate their risk of falling more than younger seniors. Approximately 18% of seniors aged 85 years and older underestimated their risk of a fall compared with 6% of seniors aged 65 to 69.

While a higher percentage of women accurately perceived they had a high risk of a fall (16%) than men (9%), a higher proportion of men accurately perceived they had a low risk of a fall (68%) than women (49%). Women also tended to overestimate their risk of a fall (26%) more than men (15%). About the same proportion of men and women underestimated their risk (9%).

Low risk of falling: Accurate and overestimated

Seniors who had a low risk of falling can be divided into two groups: those who **accurately perceived a low risk of a fall**, and those who **overestimated** their risk of falling. While both groups were at a low risk of a fall, compared with those who correctly perceived a low risk, seniors who overestimated their risk were more likely to have:

- been diagnosed with three or more chronic conditions;
- poorer perceptions of their general health and mental health; and
- lived alone (Chart 5).

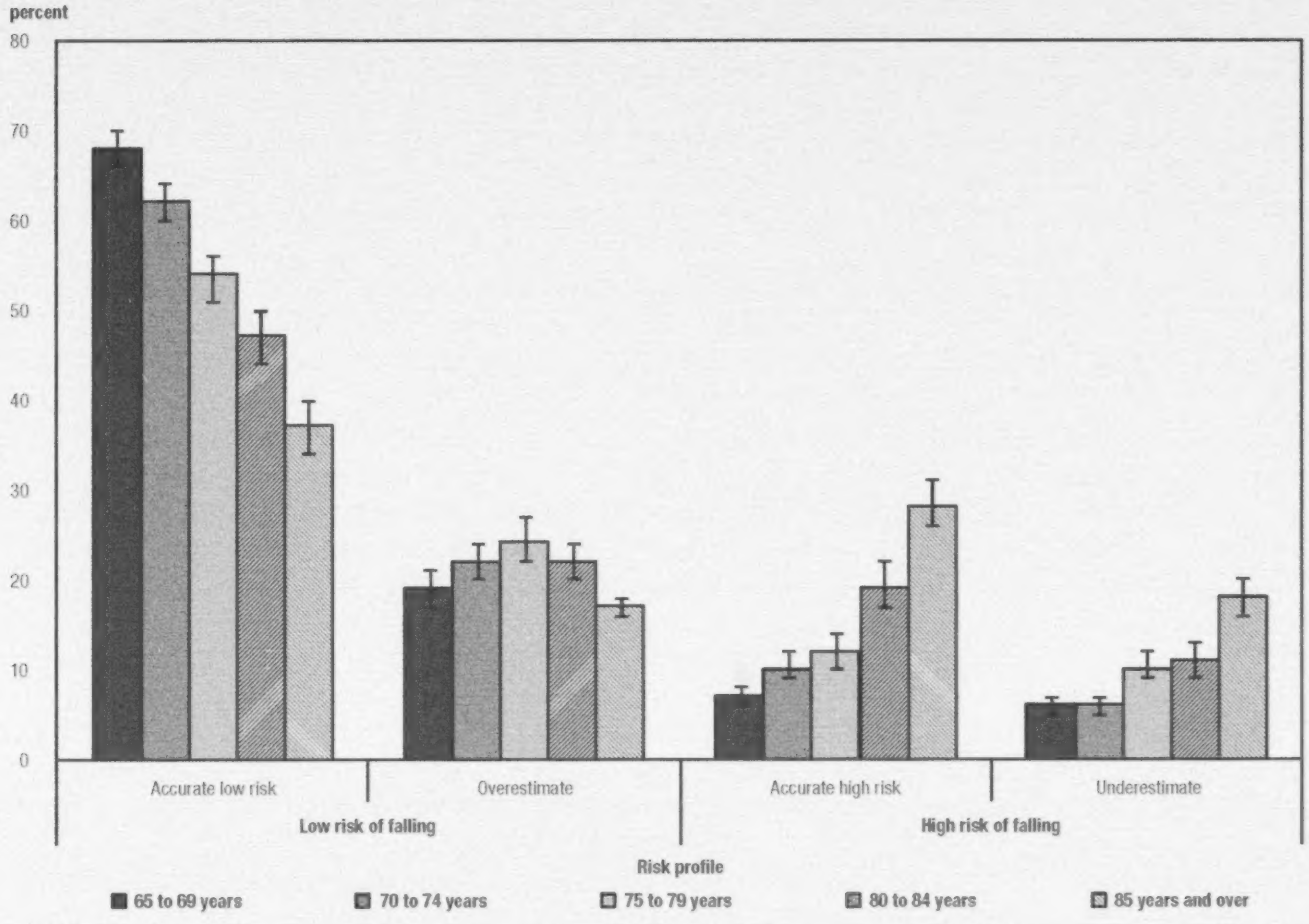
Health conditions and health perceptions could lead seniors to overestimate their risk. Past research has found that seniors who overestimated their risk possibly interpreted small balance issues as signaling major declines in health and balance, thus placing them at a greater risk of falling.[25]

Among seniors who overestimated their risk of a fall, approximately 63% had been diagnosed with three or more chronic conditions, compared with 47% of seniors who correctly perceived a low risk.

Compared with seniors who correctly perceived a low risk, seniors who overestimated their risk had poorer perceptions about their overall health and mental health. Among seniors who overestimated their risk, approximately 61% thought their general health was poor, fair or good, compared with 48% of seniors who accurately perceived a low risk.

Reducing participation in social activities can be a consequence of a perceived risk of falling.[26] While seniors who overestimated their risk lived alone more often, they were also found to participate in community-related activities at about the same rate as seniors who correctly perceived they were at a low risk.

Chart 4
Age of seniors by risk profile, household population aged 65 or older, Canada, 2008–2009



Note: The lines overlaid on the bars in this chart indicate the 95% confidence interval. They enable comparison of statistical differences between estimates.
Source: Canadian Community Health Survey – Healthy Aging, 2008–2009.

High risk of falling: Accurate and underestimated

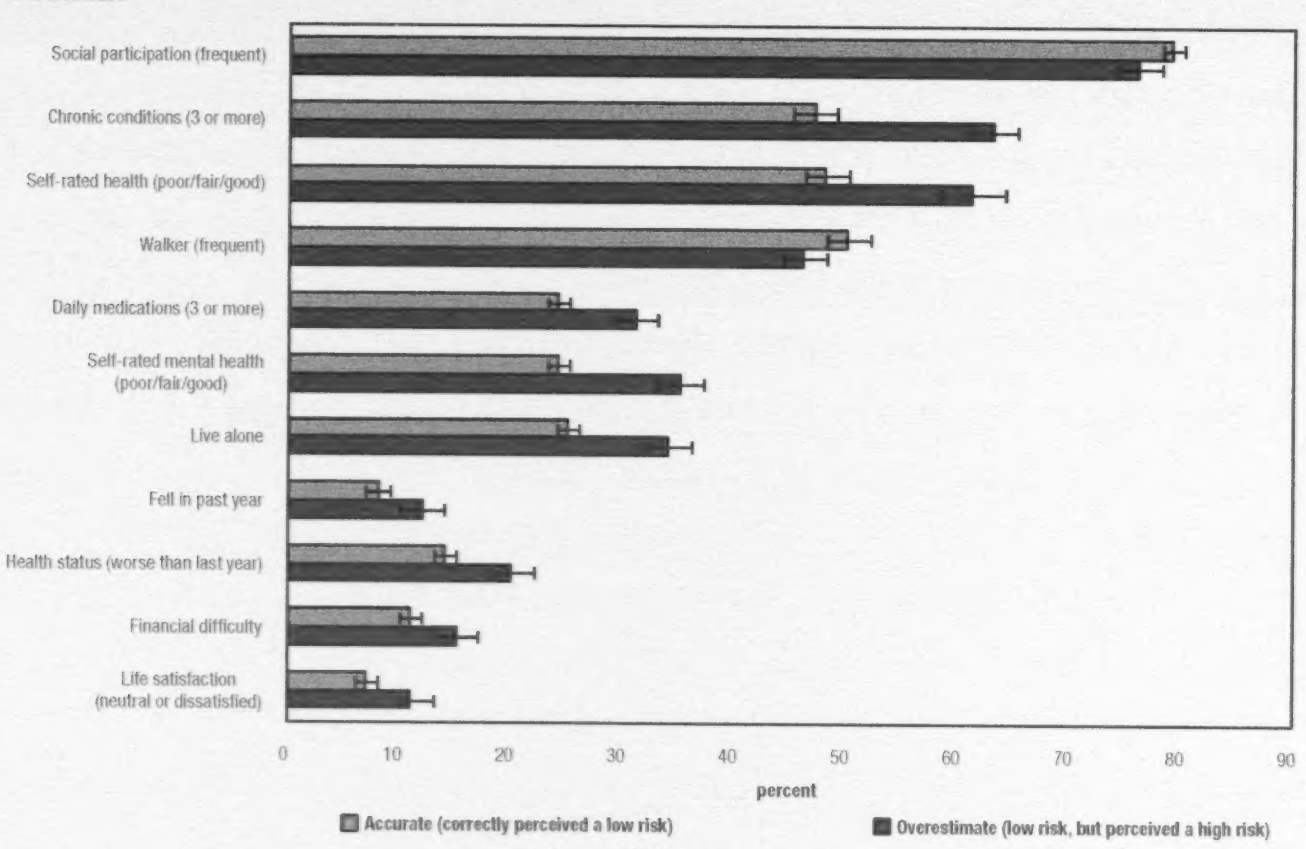
Seniors who were at a high risk of falling were divided into two groups: those who **accurately perceived a high risk of a fall**, and those who **underestimated** their risk. While both groups were at high risk of a fall, compared with seniors who accurately perceived a high risk, those who underestimated their risk:

- were diagnosed with fewer chronic conditions;
- took fewer medications;
- had a better perception of their health; and
- walked more often (Chart 6).

Medication use, particularly taking more than three to four medications per day, has been found in previous studies to be associated with a higher risk of falls.[27] Among seniors who correctly perceived they were at a high risk of falling, approximately 56% took three or more medications per day compared with 44% of seniors who underestimated their risk.

Among seniors who underestimated their risk of falling, about 32% thought their health had worsened in the past year. This compares with about 42% of seniors who correctly perceived they were at a high risk of falling. Likewise, seniors who underestimated their risk had been diagnosed with fewer multiple chronic conditions (72%) than seniors who correctly perceived a high risk (84%) (Chart 6).

Chart 5
Some characteristics[1] of seniors at low risk of falling by risk profile, household population aged 65 or older, Canada, 2008–2009



1. See 'Key definitions' box for definitions of several of the variables used in this chart.
Note: The lines overlaid on the bars in this chart indicate the 95% confidence interval. They enable comparison of statistical differences between estimates.
Source: Canadian Community Health Survey – Healthy Aging, 2008–2009.

In 2008–2009, seniors who underestimated their risk walked more frequently (37%) than those who correctly perceived a high risk (28%). This is similar to other research which found that seniors who underestimated their risk did more planned exercise than seniors who correctly perceived a high risk of falling.[28]

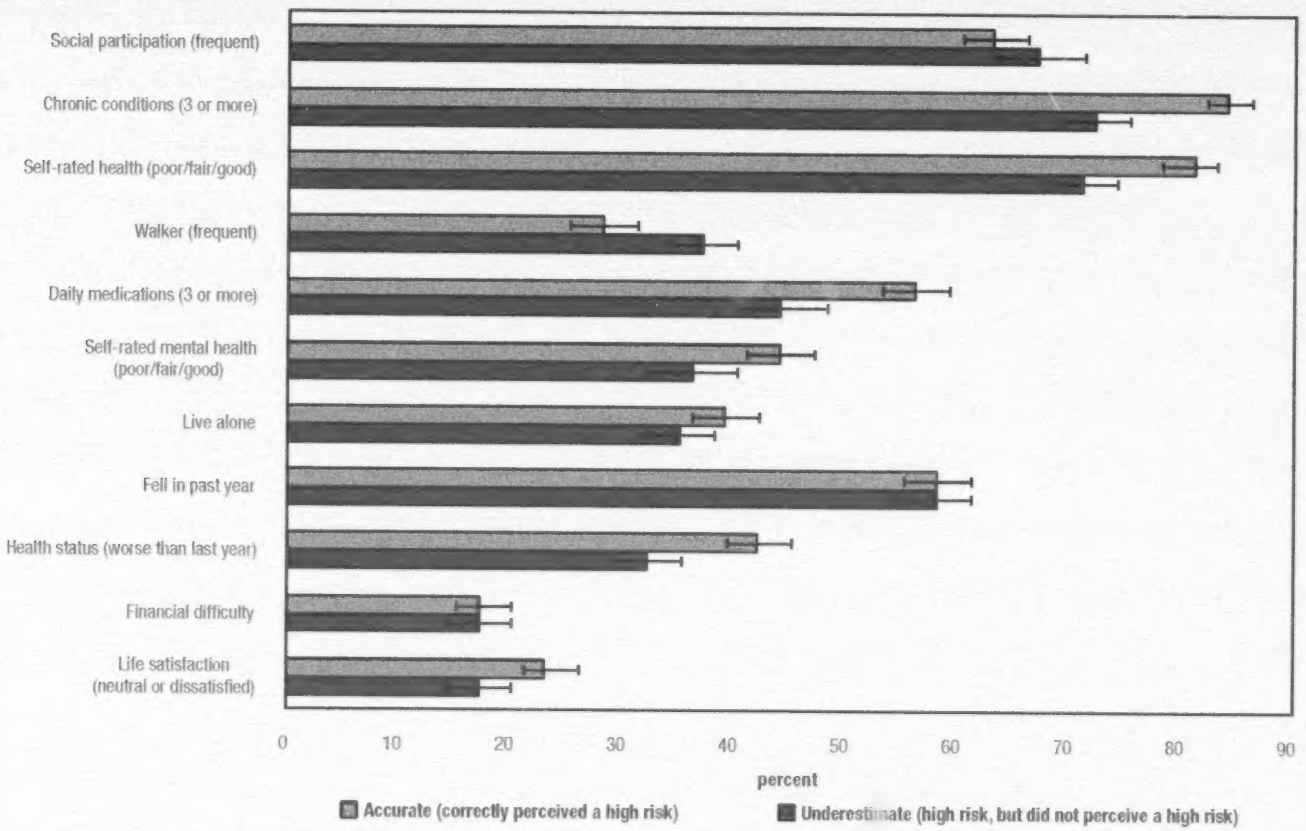
About the same proportion of seniors who underestimated their risk of falling, and seniors who correctly perceived they had a high risk, had experienced a fall in the past year (58%). Falls have been found to lead to more falls. Seniors who experience one or more falls have been found to be three times more likely to fall in the following year compared with seniors who have not fallen.[29] Seniors who underestimate their risk may not be aware that their past falls, or their health conditions, could put them at risk for future falls.

Summary

In 2008–2009, more than three-quarters of seniors (78%) had a low risk of falling, and 22% had a high risk of falling. More women than men perceived a risk of a fall, and the proportion of seniors who perceived a risk tended to increase with age. About 34% of seniors reported perceiving a risk of a fall.

Most seniors had a correct perception of their risk of falling. However, about 2 in 10 seniors overestimated their risk, while about 1 in 10 underestimated it. Seniors' perceptions of their overall health could be related to their perception of their risk. In some cases, their perception of overall health may have been related to overestimating or underestimating their risk. Seniors who underestimated their risk of a fall

Chart 6
Some characteristics[1] of seniors at a high risk of falling by risk profile, household population aged 65 or older, Canada, 2008–2009



1. See 'Key definitions' box for definitions of several of the variables used in this chart.
Note: The lines overlaid on the bars in this chart indicate the 95% confidence interval. They enable comparison of statistical differences between estimates.
Source: Canadian Community Health Survey – Healthy Aging, 2008–2009.

were more active, and were less likely to be diagnosed with three or more chronic conditions. Seniors who overestimated their risk of a fall were more likely to live alone and have a diagnosis of three or more chronic conditions.

Key definitions

Chronic conditions (three or more): were measured by asking respondents if a health professional had diagnosed them with chronic conditions that had lasted, or were expected to last, at least six months. Respondents were read a list of conditions. Only conditions that tend to be related to aging were included in the survey: Alzheimer's disease or other dementia, arthritis, back problems, bowel disorders, chronic obstructive pulmonary disease, diabetes, cataracts, glaucoma, heart disease, high blood pressure, urinary incontinence, osteoporosis, and suffering the effects of a stroke. Respondents reporting a diagnosis of three or more chronic conditions from the list were categorized as having three or more chronic conditions.

Financial difficulty: respondents who reported that, given their current household income, they had difficulty with basic expenses such as food, shelter and clothing.

Health status (worse than last year): respondents who reported that their self-perceived health, compared to one year ago was now "somewhat worse" or "much worse."

Social participation (frequent): Respondents who reported participation in community related activities at least weekly were categorized as having frequent social participation. The CCHS – HA collected information on community related activities such as: church or religious activities, volunteer or charity activities, sports or physical activity with others, education or cultural activities, participation in neighbourhood, community or professional associations, or participation in activities outside the home with family or friends.

Walker (frequent): respondents who reported "often (5 to 7 days)" to the question, "Over the past 7 days how often did you take a walk outside your home or yard for any reason?"

Caryn Pearson, Julie St-Arnaud and Leslie Geran are analysts with the Health Statistics Division.

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Notes

1. See Billette and Janz, 2011.
2. See Office of the Provincial Health Officer, British Columbia, 2003.
3. See Canadian Institute for Health Information, 2011.
4. See Canadian Institute for Health Information, 2010.
5. See Canadian Institute for Health Information Hospital Morbidity Database.
6. See Public Health Agency of Canada, 2014.
7. See Public Health Agency of Canada, 2005.
8. See Office of the Provincial Health Officer, British Columbia, 2003.
9. See Canadian Institute for Health Information, 2010.
10. See Delbaere et al., 2004.
11. See Delbaere et al., 2010.
12. See Canadian Community Health Survey – Healthy Aging Questionnaire, 2010.
13. See Friedman et al., 2002.
14. See Deandrea et al., 2010.
15. See Delbaere et al., 2004.
16. See Deandrea et al., 2010.
17. See Adkin, 2002.
18. See Friedman et al., 2002.
19. See Friedman et al., 2002.
20. See Howland et al., 1998.

21. See Canadian Institute of Health Information, 2010.
22. See American Geriatrics Society and British Geriatrics Society, 2010.
23. See Delbaere et al., 2010.
24. As measured by objective criteria according to the American and British Geriatrics societies. Please see text box "risk of a fall" for more information.
25. See Delbaere et al., 2010.
26. See Howland et al., 1998.
27. See Public Health Agency of Canada, 2014.
28. See Delbaere et al., 2010.
29. See Public Health Agency of Canada, 2014.

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